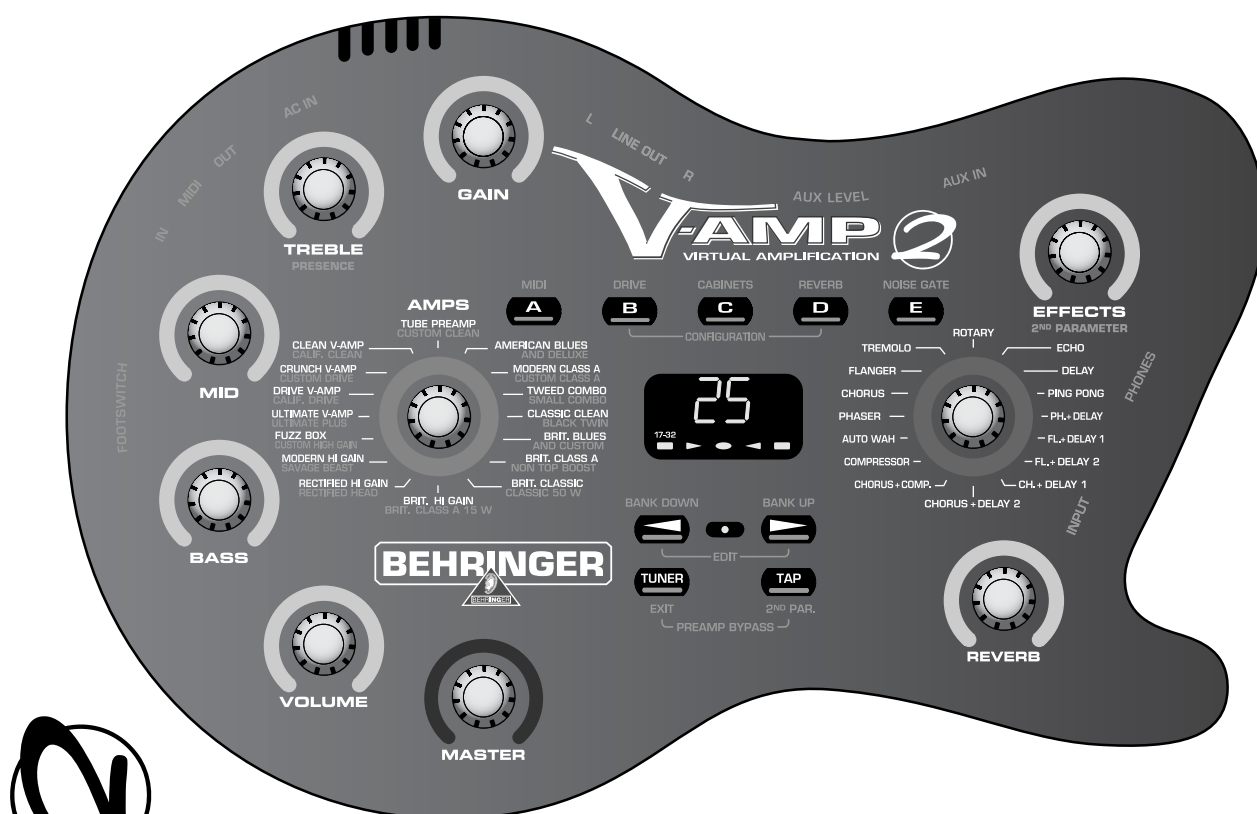


User's Manual

Version 1.1 January 2002



V-AMP®

SAFETY INSTRUCTIONS

CAUTION: To reduce the risk of electric shock, do not remove the cover (or back). No user serviceable parts inside; refer servicing to qualified personnel.



WARNING: To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.



This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure—voltage that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Read the manual.

DETAILED SAFETY INSTRUCTIONS:

All the safety and operation instructions should be read before the appliance is operated.

Retain Instructions:

The safety and operating instructions should be retained for future reference.

Heed Warnings:

All warnings on the appliance and in the operating instructions should be adhered to.

Follow instructions:

All operation and user instructions should be followed.

Water and Moisture:

The appliance should not be used near water (e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool etc.).

Ventilation:

The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings, or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

Heat:

The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

Power Source:

The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

Grounding or Polarization:

Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

Power-Cord Protection:

Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles and the point where they exit from the appliance.

Cleaning:

The appliance should be cleaned only as recommended by the manufacturer.

Non-use Periods:

The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

Debris and Liquid Entry:

Care should be taken that debris and/or liquids do not enter the enclosure through openings.

Damage Requiring Service:

The appliance should be serviced by qualified service personnel when:

- The power supply cord or the plug has been damaged; or
- Debris or liquid has entered the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped, or the enclosure damaged.

Servicing:

The user should not attempt to service the appliance beyond that which is described in the operating instructions. All other servicing should be referred to qualified service personnel.

FOREWORD

Dear Customer,

Welcome to the community of BEHRINGER users and thank you for the trust you have shown us in buying the V-AMP 2.

It gives me particular pleasure to write this to you because, after months of hard work, our engineers have achieved a highly ambitious goal: to improve on what is already an excellent virtual guitar amp whose highly developed sound and remarkable array of functions offers you maximum flexibility and performance. Naturally, the task of developing our new V-AMP 2 was a great responsibility. At all times the focus was on you, the discerning user and musician. Meeting these demands meant a lot of effort and late nights for us—and a lot of fun, too. A development project of this kind always brings a lot of different people together. That makes it all the better when everyone involved is proud of the result.

Giving you a share in our enjoyment is our philosophy. That's because you are the most important member of our team. It is your competent proposals for new products that have helped to shape our company and make it a success. In return we can guarantee you uncompromising quality, excellent sound and technical features at very reasonable price. All of this enables you to let loose your creativity, without the price getting in the way.

We're often asked how we manage to produce equipment of this quality at such incredibly low prices. The answer is very simple: you make it possible! A large number of satisfied customers means high production volume. High production volume means that we can get better purchasing terms for components, etc. And isn't it only fair to pass on these benefits to you? After all, your success is our success too!

I would like to thank all of those who have made the V-AMP 2 possible. They have all made their personal contributions, starting with the designers and including the many other employees in our company (many thanks to Volker, Thomas, Jan and Oliver).

Friends, it was worth it!

Thank you,

A handwritten signature in black ink, appearing to read 'U. Behringer', with a long horizontal flourish extending to the right.

Uli Behringer

V-AMP® 2

Virtual guitar amplifier with tube simulation and digital multi-effects processor

- ▲ Authentic virtual guitar preamp with 32 amp and 15 speaker simulation models
- ▲ Dedicated selectors for amp models, speaker cabinets and digital effects
- ▲ Transparent user interface with direct display of all essential settings
- ▲ 32 simulations of popular guitar amps, ranging from clean to crunch to tube distortion sounds
- ▲ 15 speaker simulations directly selectable and freely combinable with any amp model
- ▲ 24-bit high-resolution stereo multi-effects processor with first-class algorithms like chorus, flanging, phasing, rotary, auto-wah, echo, delay, compressor and various effects combinations
- ▲ Additional effects parameters now directly accessible on the unit
- ▲ New preamp bypass function allows use as a stereo effects unit without amp model
- ▲ 125 presets, including 50 original artist presets, organized in 25 banks for easy editing
- ▲ Dedicated reverb control adds 1 of 9 stereo reverb types to any amp, speaker or effects setting
- ▲ Separate wah-wah effect can be controlled manually or via MIDI and is available in addition to any other effects combination
- ▲ Effective 3-band EQ with amp model dependent characteristics
- ▲ New presence control adjusts a high-frequency filter, simulating the negative feedback of tube amps
- ▲ Extremely low-noise—S/N ratio now 90 dB
- ▲ Adjustable stereo aux input for line-level signals (CD, drum box, sound card, MIDI backing etc.)
- ▲ Stereo line output with virtual speaker simulation for recording and live applications
- ▲ Five new, practical configuration modes for various studio and live applications, some with additional global 3-band EQ
- ▲ Master volume control and stereo headphones output
- ▲ Extensive MIDI implementation allows complete real-time remote control and automation, data transfer and access to additional parameters
- ▲ Built-in auto-chromatic tuner
- ▲ Tap-tempo function allows real-time adjustment of effects speed parameter
- ▲ Professional noise reduction system on board
- ▲ Gig bag and dual footswitch for preset selection and tuner control included
- ▲ The V-AMP is protected by US patents No. D444,169 and D444,493
- ▲ Manufactured under ISO9000 certified management system

TABLE OF CONTENTS

1. INTRODUCTION	6
1.1 The new functions of the V-AMP 2	6
1.2 Before you begin	7
1.2.1 Serial number	7
1.3 Control elements	7
1.3.1 User interface	7
1.3.2 Connections on the V-AMP 2 side panel	9
2. EXAMPLES OF USE/CONFIGURATIONS	10
2.1 Selecting CONFIGURATION modes	11
2.2 Standard set-up with guitar, footswitch and external playback	11
2.3 Recording	12
2.4 Live set-up with an external guitar amp	12
2.5 Live set-up with P.A. system and your own monitor amp on stage	13
3. V-AMP 2 PRESETS	13
3.1 Calling up presets	13
3.2 Editing presets	14
3.3 Storing presets	14
3.4 Discarding an edited preset/recovering a factory-programmed preset	14
3.5 Restoring all factory-programmed presets	15
4. AMP/SPEAKER SIMULATION	15
4.1 Amp descriptions	15
4.2 Speaker descriptions	17
5. EFFECTS PROCESSOR	18
5.1 Effect descriptions	19
Reverb and delay algorithms	19
Modulation effects	19
Combinations of effect algorithms (multi-effects programs)	19
Special effects	20
5.2 The separate reverb effect	20
6. TUNER	21
6.1 Tuning your guitar	21
6.2 Setting reference pitch "A"	21
7. INSTALLATION	22
7.1 Audio connections	22
7.2 MIDI connections	23
7.2.1 Sending/receiving MIDI-Sysex data	23
8. APPENDIX	24
8.1 MIDI implementation	24
8.2 Default cabinets/amp models	25
9. SPECIFICATIONS	26
10. WARRANTY	27

CAUTION!



Please note that high loudness levels may cause permanent damage to your hearing. Turn the **VOLUME** control down all the way before switching on the equipment. Be sure to keep the volume at an appropriate level.

1. INTRODUCTION

Congratulations! The V-AMP 2 you have purchased is the revised version of the V-AMP—a state-of-the-art virtual guitar amplifier that has set new standards. Our ultimate aim in developing it was to create the authentic sound of classic amplifiers by means of “physical modeling” and to combine this with the latest DSP effects.

The V-AMP 2 has a number of decisive advantages over its predecessor, the V-AMP: the number of amp simulations has been doubled, there are now five globally adjustable operating modes, and you can also use this device purely as an effects unit thanks to its innovative Preamp Bypass.

Once again we took up the challenge of creating a device that would still be talked about for years to come. The V-AMP 2 is an all-purpose device that offers 32 authentic amplifier sounds—and, in fact, even special speaker sounds—without causing you any transport problems! In addition, it has all the versatility of sound provided by state-of-the-art multi-effects processor technology. In short: the V-AMP 2 gives you a sound tool that has everything on a musician’s wish-list today.

BEHRINGER is a company with its roots in professional recording studio technology. For many years now we have been successful in developing products for studio and live use. These include microphones and 19" devices of all kinds (compressors, enhancers, noise gates, tube processors, headphone amplifiers, digital effects devices, DI boxes, etc.), monitor and P.A. speakers and professional live and recording mixers. Our entire technical know-how has gone into your V-AMP 2.

Flexibility is the name of the game in the music business. A guitarist today has to be able not only to offer a wide range of sounds, but also to adapt at short notice to different environments—home recording, studio, live gigs. For that very reason, enormous amplifier stacks have become a thing of the past. The V-AMP 2 offers you the maximum number of features in such a compact form that you can set up and pack up in seconds and you can master it with ease.

The V-AMP 2 will still be state-of-the-art years from now because we have equipped it with an EPROM that can be replaced without the slightest difficulty. This means that we can keep on working on new algorithms, taking your ideas and suggestions into account. We will then make these software updates available to you free of charge on the Internet, thus ensuring that the V-AMP 2 remains state-of-the-art in the future too.

But enough of this talk. Nothing we say will convince you as readily as what you hear and feel when you test your V-AMP 2 for the first time. Then you will experience a new generation of virtual guitar amplifiers with some amazing features:

- ▲ Knock-out sound options that will blow away any conventional guitar amp.
- ▲ Perfect tube sound emulation without the typical tube amp drawbacks (short lifespan, heat generation, mechanical sensitivity).
- ▲ Latest DSP technology, giving you a wide range of classic and modern effects sounds.
- ▲ Rugged, indestructible build, allowing you to use the V-AMP 2 in the toughest conditions on the road.

1.1 The new functions of the V-AMP 2

The V-AMP 2 was designed to be an evolutionary improvement on our popular virtual guitar amp, the V-AMP. Alongside the popular features of its predecessor, the V-AMP 2 offers many new features which will make this unit an indispensable part of your equipment:

- ▲ 16 additional amp sounds—in total, 32 authentic virtual amplification models plus amp bypass available.
- ▲ 5 basic configurations can be selected for different studio and live situations (see chapter 2).
- ▲ PRESENCE control can now be set for each amp.
- ▲ An additional effects parameter can now be set directly on the device (see chapter 5).
- ▲ Globally adjustable 3-band EQ can be set as required in the live modes to match the V-AMP 2 sounds with different amps/combos.
- ▲ Total preset compatibility for existing V-AMP sounds.
- ▲ Editor software available free of charge at www.behringer.com/V-AMP 2.

1.2 Before you begin

Your V-AMP 2 was carefully packed before it left the factory to protect it from damage in transit. If there are signs of damage on the packaging, we recommend that you immediately examine the device itself for further signs of damage.

 **In case of damage, do NOT return this device to us, but immediately notify your dealer and the transport company, as any entitlement to damages may otherwise be lost.**

A power supply unit which meets the necessary safety requirements is enclosed for connecting the V-AMP 2 to the mains. When the V-AMP 2 is connected to the mains via the power supply unit it is automatically switched on.

 **Never connect the V-AMP 2 to a power supply unit that is already plugged into the mains! Always connect the V-AMP 2 to the power supply unit first and then plug it into the mains.**

The MIDI connections (IN/OUT) are for standard DIN connectors. Data is transferred at zero potential via an optocoupler. Please read chapter 7 “INSTALLATION” for further information.

1.2.1 Serial number

The V-AMP 2's serial number is located on the rear side. In order to qualify for extended warranty entitlement, please return the completed warranty card to us within 14 days of purchase, or simply register on-line (www.behringer.com).

1.3 Control elements

1.3.1 User interface

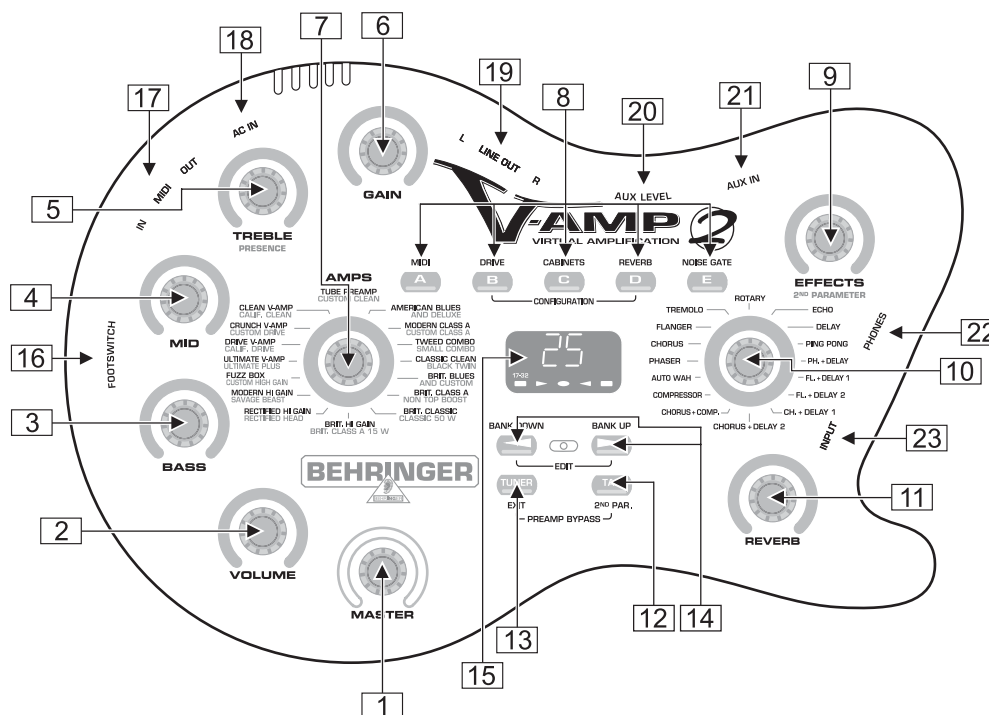










Fig. 1.1: Control elements on the user interface

- 1 The *MASTER* control determines the overall volume of the V-AMP 2.
-  **Apart from the AUX LEVEL control [20] this is the only “conventional” control on the V-AMP 2. All the other controls are encoder-type rotary controls.**
- 2 The *VOLUME* control is for the volume of the selected preset.
- 3 The *BASS* control in the EQ section is for raising or lowering the low-frequency range.
- 4 The *MID* control is for raising or lowering the mid-range frequencies.
- 5 *TREBLE* controls the high-frequency range of the activated preset.
-  **If the TAP key [12] is down, the TREBLE control changes to a PRESENCE control. This enables you to boost/cut a high-frequency filter tuned to whatever amp model is active, thus simulating the frequency-sensitive coupling of tube amps.**
- 6 The *GAIN* control determines the distortion level.
- 7 The *AMPS* control is for selecting one of 32 different amplifier simulation models. The control is surrounded by a ring of 16 LEDs. Each LED corresponds to two types of amplifier. The first 16 simulations can be selected by turning the AMPS control (marked on the housing in: white).
To select the simulation models 17 - 32 (marked on the housing in: gray), press down the TAP key while making your selection by turning the AMPS control.
-  **The LED “17 - 32” in the bottom left-hand corner of the DISPLAY indicates that one of the simulation models 17 - 32 has been selected.**
In addition you can activate a PREAMP BYPASS by pressing the key combination TAP and TUNER. If PREAMP BYPASS has been selected, none of the LEDs on the AMPS control lights up.
- 8 These five keys are for selecting a preset (A - E) within one bank.
In EDIT mode (activated by simultaneously pressing the arrow keys described in [14]) the keys perform the function printed directly above them:
 - ▲ A: Accesses the *MIDI* functions. Use the arrow keys to set the MIDI channels for transmitting and receiving (1 through 16).
 - ▲ B: Selects the *DRIVE* function. This noticeably raises distortion and volume. Use the arrow keys to switch DRIVE on and off. The DRIVE function is wired before the GAIN control.
-  **While editing the DRIVE function, you can also activate and adjust the wah-wah effect by turning the EFFECTS control. The LEDs surrounding the EFFECTS control indicate the position of the pedal. If none of the LEDs lights up, the wah-wah is bypassed.**
- ▲ C: This key activates the *CABINETS* mode. Use the arrow keys to select the type of speaker or combination of speakers you want. You can also switch off the speaker simulation completely (“-”). For further details, please refer to chapter 4.2 “Speaker descriptions”.
- ▲ D: Use this key to select the *REVERB* function. The arrow keys can be used to select one of nine different types of reverb in addition to the multi-effects processor. For further details see chapter 5.2.
- ▲ E: Here you can activate the *NOISE GATE* function. Use the arrow keys to adjust the noise reduction level.
-  **CONFIGURATION: If you press the B and D keys simultaneously in Play mode, you can select the V-AMP 2’s general operating modes allowing adjustments to different studio and live situations (see chapter 2).**
- 9 If an effect has been selected via [10] its part of the overall sound can be set using this *EFFECTS* control. If you select the “Compressor” effect, you can use the EFFECTS control to adjust the compression intensity. If you turn the control to the left until all the LEDs are off, the effect is disabled. This is known as an effect bypass.
-  **By pressing the TAP key you can set a second effects parameter using the EFFECTS control (see tab. 5.1).**

- 10 This control is for selecting an effect or a combination of effects. This encoder-type rotary control is also surrounded by a ring of 16 LEDs. Each LED corresponds to one specific effects preset.
- 11 Using the *REVERB* control, you can add the reverb content of your choice to your overall sound. By turning it to the left until all the LEDs are off, you deactivate the reverb. To fade out the original signal, turn the control to the right until only the last LED lights up.
-  The LED rings around the **VOLUME**, **BASS**, **MID**, **TREBLE**, **GAIN**, **EFFECTS** and **REVERB** controls each have nine LEDs. On each ring either one LED or two neighboring LEDs will light up at a time, indicating a total of 17 different positions.
- 12 The *TAP* button performs three functions:
- ▲ Tap the rhythm of a piece of music on the *TAP* button and the selected effect automatically adapts to the tempo of the piece of music.
 - ▲ Holding down the *TAP* button, you can use the *TREBLE* control to change the *PRESENCE* setting of the amp simulation model you've selected.
 - ▲ You also can access the second effects parameter set by the *EFFECTS* control by holding down the *TAP* button (see tab. 5.1).
- 13 The *TUNER* button is for switching on the tuner. In addition, this button can also be used to leave the *EDIT* mode.
- 14 Use the two arrow keys to select a different bank (*BANK DOWN* and *BANK UP*). You can skip banks by holding each of the keys down. To activate the *EDIT* mode, press both keys simultaneously. If you press one of the keys A - E () in that mode, the arrow keys can be used for setting parameters.
- 15 The *DISPLAY* shows you what preset bank you have selected and gives you information on parameter changes when you are editing. In *TUNER* mode the *DISPLAY* shows the pitch of the instrument connected to the unit. If the amplifier simulations 17 - 32 have been selected, the LED in the bottom left-hand corner of the *DISPLAY* lights up.

1.3.2 Connections on the V-AMP 2 side panel

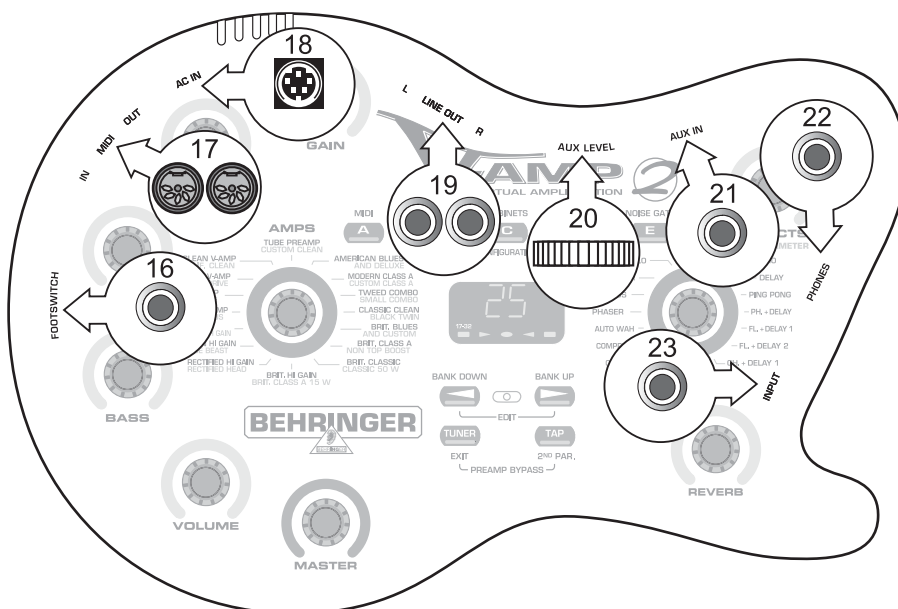




Fig. 1.2: Connections on the V-AMP 2 side panel

- 16 Connect the stereo jack plug of your FS112V footswitch to the *FOOTSWITCH* socket. This will enable you to recall the presets from one bank. To switch on the tuner, hold down the *DOWN* button on the footswitch for more than two seconds. You can also switch the tuner off again using the same button.
- 17 The V-AMP 2 has MIDI inputs and outputs to which you can connect a MIDI foot pedal, e.g. the BEHRINGER MIDI FOOT CONTROLLER FCB1010 or a PC.

- 18 Connect the enclosed power supply unit via the *AC IN* socket.
- 19 The balanced *LINE OUT* 1/4" sockets provide the audio signal from the V-AMP 2 in stereo, for example, for recording purposes.
-  **You can connect the *LINE OUT* outputs with balanced or unbalanced jack plugs. The left line output of the V-AMP 2 can be used to route the audio signal to a guitar amp with a mono input. Please note that the signal from the multi-effects processor will then not be available in stereo either.**
- 20 The *AUX LEVEL* control is used for determining the volume of the signal received at the *AUX IN* input.
- 21 The *AUX IN* jack socket enables you to feed in additional stereo signals on the V-AMP 2 and play with a drum computer or play-back, for example.
- 22 The *PHONES* jack allows you to monitor the V-AMP 2 audio signal with standard headphones.
-  **When you connect your headphones, the V-AMP 2 automatically activates studio mode 1 (S1). If the current preset or setting does not have a cabinet model, the V-AMP 2 will also select a default speaker simulation automatically, as soon as you plug in your headphones. The standard cabinet simulations are shown in tab. 8.2. However, you can intentionally change or deactivate the simulation when using headphones by selecting “-” in the *CABINETS* mode.**
- 23 The *INPUT* socket is the V-AMP 2's 1/4" jack socket for your guitar. Please use a standard 1/4" mono jack cable.

2. EXAMPLES OF USE/CONFIGURATIONS

To adapt the V-AMP 2 best to different studio and live situations, you have a choice of five modes (CONFIGURATION). Regardless of the settings on the unit itself, these modes determine from where the V-AMP 2's output signal is taken. And the left and right output signals can be used differently at the same time, too. One look at the following table will clearly show that you can optionally take the signal with or without speaker simulation or sound control at the V-AMP 2 output. The effects signal at the output does not necessarily have to be present on both sides either:

Operating mode	Function		Applications
	LINE OUT L	LINE OUT R	
Studio 1 (S1)	Stereo operation with selected effects and speaker simulations.		▲ V-AMP 2 as practice amp, e.g. with headphones. ▲ Recording situation: (V-AMP 2 is connected to stereo line channel on the mixing console).
Studio 2 (S2)	Left (dry signal, only compressor plus auto-wah).	Right (with modulation, delay and reverb effects).	▲ Recording situation: with the left channel connected to the recording device. The right channel is used for monitoring only (with effect). Advantage: while recording, you don't have to specify the effect used during the mix-down, but can still monitor wet signals.
Live 1 (L1)	Stereo operation + additional 3-band EQ (adjustable in CONFIGURATION mode).		▲ V-AMP 2 connected to a guitar amp with stereo input. The additional EQ (BASS, MID & TREBLE controls) allows you to match the sound to the amplifier used. The additional EQ does not affect the settings of your presets.
Live 2 (L2)	Stereo operation + additional 3-band EQ, but without cabinet simulation.		▲ Here, too, the V-AMP 2 can be connected to a guitar amp with a stereo input. The additional EQ (BASS, MID & TREBLE controls) allows you to match the sound to the amplifier used. However, since no cabinet simulation is enabled, the speaker sound is determined by the combo/cabinet used.
Live 3 (L3)	Left + additional 3-band EQ with modulation, delay and reverb effects, but without cabinet simulation.	Right with cabinet and modulation, delay and reverb effects, but without additional 3-band EQ.	▲ V-AMP 2 as a stage amp, with the left output connected to a line input on the monitor amp. The additional EQ (BASS, MID & TREBLE controls) allows you to match the sound optimally to the monitor amp. The right channel (DI Out) is connected to the mixing console or stage box and is used for the FOH mix.

Tab. 2.1: V-AMP 2 modes with examples of use

 In modes L1, L2 and L3, the additional 3-band EQ is set with the BASS, MID and TREBLE controls. As this EQ works globally, it has no effect on the settings of these three controls from the preset programming.

 If you plug in your headphones, the V-AMP 2 automatically selects S1 mode.

2.1 Selecting CONFIGURATION modes

Your V-AMP 2 left the factory set in Studio 1 (S1) mode. To change modes, you have to switch to CONFIGURATION mode. To do this, press buttons B and D simultaneously. You can switch from one mode to another by means of the arrow keys. To leave this mode, press TUNER.

2.2 Standard set-up with guitar, footswitch and external playback

For practising purposes set your V-AMP 2 up as shown in fig. 2.1, for example. You can of course also plug in a drum computer instead of a playback source, such as a tape deck. For silent practising plug your headphones into the PHONES jack. Use the FS112V footswitch supplied with the V-AMP 2 to switch from one bank to another or to activate the tuner.

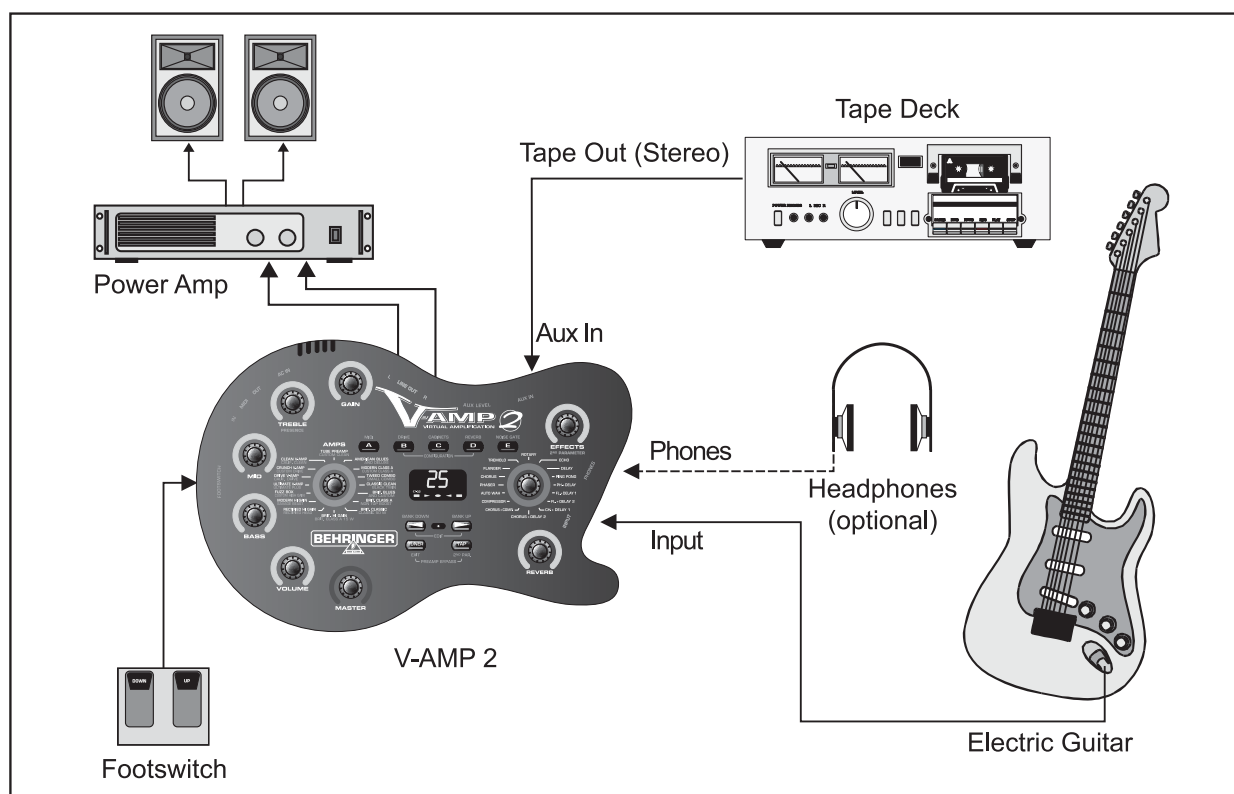


Fig. 2.1: Standard set-up

 For this application please select CONFIGURATION mode S1!

The V-AMP 2 is of course also ideally suited for recording your guitar parts for posterity, either on tape or digitally. The advantage of the V-AMP 2 in recording situations is obvious: it makes you ultra-flexible, because you can simply take the virtual amp with you into the studio control room without having to take along any speakers. This gives you complete control of the sound on your V-AMP 2 at all times. If you feel the sound on the mixer needs to be changed, you can discuss it with the sound engineer at once and together you can set the sound so that it is perfectly suited to the recording. In other words, no more hassle of trekking back and forward between the recording and control rooms.

2.3 Recording

A widely used recording application is to make a “dry” recording of the output signal while monitoring the signal with effects (“wet”). The advantage here is that you don’t have to make a final decision on what effect to use during mix-down. For this purpose connect the left output of the V-AMP 2 to the recording device, and use the right output for monitoring.

If you have a MIDI foot controller, you can use it to control preset, bank and amp model changes. It’s also convenient for switching the tuner on and off.

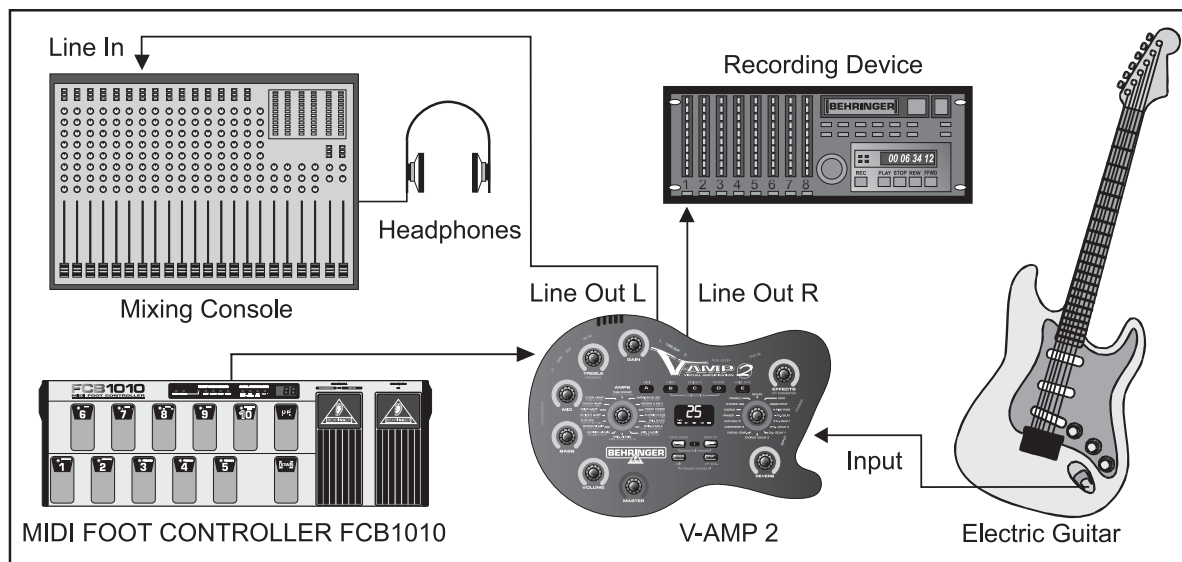


Fig. 2.2: Recording situation

 For this application please select **CONFIGURATION mode S2!**

2.4 Live set-up with an external guitar amp

When you’re playing on stage it’s extremely important that you are able to hear your guitar properly. It’s an advantage to use a guitar amp with a line input, like the BEHRINGER BLUE DEVIL GX112. Apart from that, the amp used should provide enough power to reproduce the V-AMP 2’s sound potential to the full.

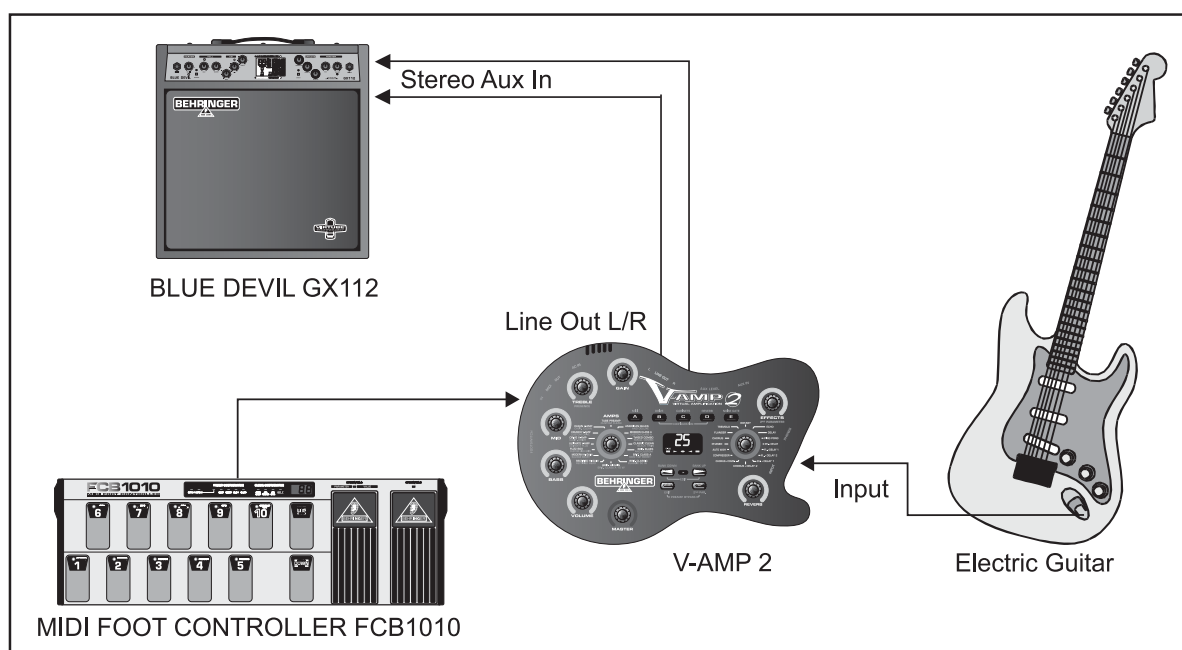



Fig. 2.3: Live set-up with external guitar amplifier

 For this application please select mode L1 or L2 under **CONFIGURATION**, depending on whether you want to have the external amp with or without cabinet simulation! Thus, you can also optimize the sound on the amp with **TREBLE**, **MID** and **BASS** of the global 3-band EQ.

2.5 Live set-up with P.A. system and your own monitor amp on stage

This application is intended to give you your own guitar signal on stage so that you can have complete control of intentionally produced feedback, for example. The monitor amp is controlled via **LINE OUT L** including additional 3-band EQ and effects, but no cabinet simulation. **LINE OUT R** feeds the DI signal to the P.A. mixer. Here, the effects and cabinet simulation can be used without the 3-band monitoring EQ.

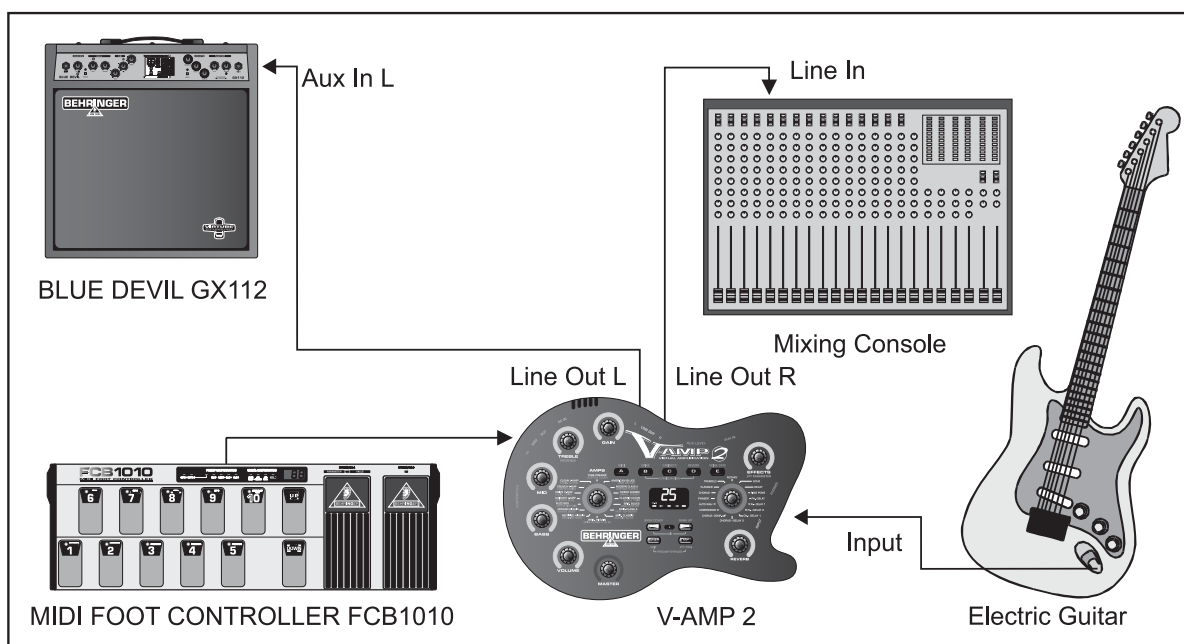


Fig. 2.4: Live set-up with P.A. system and on-stage monitor amp

 For this application please select **CONFIGURATION** mode L3! You can adjust the sound on the left channel for your stage amp independently using the global 3-band EQ.

3. V-AMP 2 PRESETS

The V-AMP 2 has 125 overwritable presets divided into 25 banks. In other words, there are five presets available per bank. Each preset consists of a maximum of five “ingredients”:

- ▲ amp simulation (including **GAIN**, **EQ** and **VOLUME** settings),
- ▲ cabinet model (complementing the respective amp’s sound),
- ▲ pre-amp effects, such as noise gate, compressor, auto wah & wah-wah,
- ▲ post-amp multi-effects, such as delay and modulation effects and
- ▲ reverb/room simulations.

An overview of all the presets on the V-AMP 2 is enclosed with this manual.

3.1 Calling up presets

When the unit is switched on it automatically loads the preset used last. In the following example, the last preset selected was preset D in Bank 25:

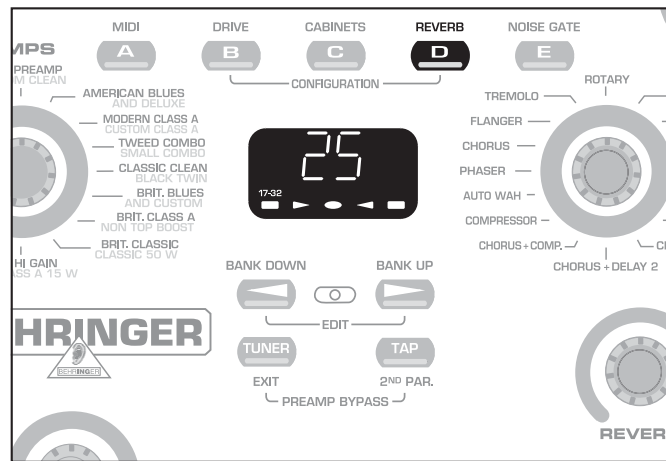


Fig. 3.1: Calling up presets


In this case, by pressing button A, B, C or E you can immediately call up another preset of the same bank. The two arrow keys (BANK UP und BANK DOWN) enable you to switch banks. The display on the V-AMP 2 always shows which bank has been selected. When you switch banks, the preset has to be called up by pressing one of the buttons A - E. An LED lights up to show you which preset in the respective bank has been activated.

3.2 Editing presets

Editing presets is fast and simple with the V-AMP 2. The best way is to call up a preset you like and then start editing it. Select any amp model by means of the AMPS encoder. The LED on the preset button flashes (e.g. D) and signals that you have made a change.


Now change the settings of the VOLUME, BASS, MID, TREBLE and GAIN controls as you like. If you select an effect, you can adjust its part in the overall sound using the EFFECTS control. You then switch to EDIT mode by pressing the arrow keys simultaneously. If you use buttons B - E to activate the DRIVE, CABINETS, REVERB and NOISE GATE functions respectively and then edit using the arrow keys, the value of the respective parameter is shown in the display. To leave EDIT mode, briefly press the TUNER button.

If you hold the TAP button down while using the TREBLE control, you can raise or lower an additional higher-frequency filter (PRESENCE). This simulates the frequency-sensitive coupling of tube amps.

 **Apart from compressor and auto wah, all the multi-effects have a speed-based parameter. Assuming you want to set the effect you've selected to the tempo of your playback: just tap the TAP button twice in time to the music and the effect tempo will match the tempo of your piece.**

3.3 Storing presets

To store your edited preset, hold down the preset button required for approx. 2 seconds for the preset to be overwritten (the corresponding LED lights up throughout).

 **You do not necessarily have to store your edited preset in place of the original preset selected. If you choose a different storage position, select the preset bank you want using the arrow keys (BANK UP and BANK DOWN). You can then store your changes by holding down the preset button for approx. two seconds. For example, you can edit a preset originally stored in bank five, position D, and then store it in bank six, position A.**

3.4 Discarding an edited preset/recovering a factory-programmed preset

If you have edited a preset and find that you don't like the edited version, you can, of course, discard it. Let's assume you've selected and then edited preset C (the corresponding LED has lit up), but you would now like to return to the configuration stored previously. Simply select another preset. The next time you call up the

preset the temporary edited version is discarded. However, after editing you can also hold down the two arrow keys until “Pr” appears in the display, which brings back the factory preset that was originally stored there. However you then have to save it again by holding down the corresponding preset button for approx. two seconds.

3.5 Restoring all factory-programmed presets


All factory-programmed presets can be restored in the following way: Hold down buttons D and E and then switch on the V-AMP 2. “CL” appears in the display. Now release the two buttons and press the two arrow keys simultaneously. This erases all the edited presets you have stored and restores the factory-programmed presets.

4. AMP/SPEAKER SIMULATION

The very heart of your V-AMP 2 is its amp/speaker simulation. The 32 simulation models can make work in a home recording studio very much easier because it isn’t necessary to mike up the guitar amp. The V-AMP 2 makes it child’s play for you to choose one of the legendary guitar amps, be it for Brit Pop, Blues, Heavy Metal or whatever. In addition, you can tailor the sound of the respective amp to suit your ideas and then connect it virtually to one of 15 speaker simulations (cabinets). And on top of all that, you can even choose digital effect and reverb types for your virtual amp. See chapter 3 “V-AMP 2 PRESETS” for more details.

When you switch on the V-AMP 2 it automatically loads the last preset selected. The LED ring around the AMPS control shows what amp has been selected. The corresponding LED lights up. To select another amp simply turn the control. Use the VOLUME, BASS, MID, TREBLE and GAIN controls to modify the basic sound of the amp. Hold down the TAP button and turn the TREBLE control to raise or lower an additional high-frequency PRESENCE filter (see [5]).

As a rule, you will want to select an amp first, then a cabinet and finally an effect. See chapter 3 for how to store your modifications. To give you a better overview of the extensive range of amp simulations on the V-AMP 2, we have compiled the following descriptions of the different types of amp.

 **When you select an amp simulation, an appropriate speaker simulation is activated automatically (see tab. 8.2 in the appendix). Otherwise the authenticity of the sound could be affected by an unsuitable cabinet—especially if you are using headphones. Naturally you can combine the amp simulations with other cabinets according to taste.**

4.1 Amp descriptions

AMERICAN BLUES: This virtual amp is modelled on the Fender Bassman 4 x 10 Combo. Originally designed as a bass amp it soon became a standard amp of blues legends such as Steve Ray Vaughan or Billy Gibbons due to its characteristic distortion. As you would expect, it packs a solid punch in the bass range, but is still flexible enough in the mid and treble ranges.

AND DELUXE: A synthesis of a 1960 Fender Blackface Deluxe and a 50s Fender Bassman. The result is a crystal-clear sound that still simulates the edge of the vintage amps. The V-AMP 2 sound control gives you even greater scope than the EQ controls on the originals.

MODERN CLASS A: This amp is characterized by its slight distortion and sounds almost like hi-fi. It is modelled on the Matchless Chieftain, a very expensive, hand-made amp.

CUSTOM CLASS A: The model for this simulation was the Budda Twinmaster. This Class-A amp was renowned for its warm sound combined with irresistible tube distortion. Although the original amp did not have a mid control, we have given the V-AMP 2 the capability of suiting the mid range to your taste.

TWEED COMBO: This was Jeff Beck’s favorite when he recorded the albums *Blow by Blow* and *Wired*. This amp was not actually designed for heavy distortion, but due to its low power it is ideal for uncompromising overdrive sound.

SMALL COMBO: This model is based on the 1960 Tweed Champ. The main attraction of this amp simulation is when the DRIVE function is used a lot. Although this amp was actually designed for beginners on the guitar, it soon became a favorite amp of many guitar aficionados. The reason for that was that it produced an

amazingly distorted sound even at low volume. The Tweed Champ had a volume control, but no EQ control. If you want to get the most authentic sound out of this amp, keep the sound control on the V-AMP 2 in the mid-range.

CLASSIC CLEAN: Back in the 80s, the Roland JC-120 was the preferred sound of Buzzy Feiten (guitarist with the Dave Weckl Band). The unique quality of this transistor amp's sound is the way its brilliance cuts through any mix. It is ideal for the New Wave sound of the 80s that is making a come-back today. The JC-120 was also popular among Fender Rhodes pianists, by the way.

BLACK TWIN: This simulation was modeled on a Fender Blackface Twin from the year 1965. In the 60s this amp was used by jazz, country and even rock guitarists. What was unique about it was that it was exceptionally loud and was therefore mainly used for live performances. The secret of the Blackface Twin was that although you could play it extremely loud, the distortion remained relatively low.

BRITISH BLUES: Modeled on the JTM 45, the first Marshall amp ever. This, by the way, was Eric Clapton's favorite amp when he was with Cream. The JTM 45 was the forerunner of many of Marshall's later amps with their distinctive, powerful sound. Extreme gain settings produce a highly compressed and really "dirty" sounding distortion. Combined with a 2 x 12" speaker simulation it produces impressive Bluesbreaker sounds.

AND CUSTOM: This simulation is based on a 1965 Marshall JTM 45 Bluesbreaker but has more flexibility of sound control. Turn the GAIN control to the left and this simulation sounds like a Marshall; turn it to the right and it is more reminiscent of the Budda.

BRITISH CLASS A: This simulation is modeled on the Vox AC 30. This amp was originally designed in the 60s when guitarists wanted amps with enhanced brilliance, a feature that Vox successfully implemented by means of "revolutionary" bass and treble controls. Brian May and U2's The Edge are probably the best-known users of this sound.

NON TOP BOOST: This is a Vox AC 30 as used by Bryan Adams in the recording studio. Unlike the well-known AC 30 with treble boost, the former amp version did not have this feature. This simulation copies the original amp's "normal" channel.

BRITISH CLASSIC: Based on a 1959 Marshall Plexi 100 Watt, this amp is ideal for producing clean sounds. It was used by Jimi Hendrix, Eric Clapton and Jeff Beck.

CLASSIC 50 W: This is also a Plexi, but we have extensively widened its sound range. The sound controls on the original Marshall Plexi 50 Watt hardly had any effect on the sound if distortion was high.

BRITISH HI GAIN: Compare this model with a Marshall JCM 800. Although the original was renowned mainly for its distorted sounds, this amp also sounds very good with low gain settings. It's good at reproducing Steve Ray Vaughan's and Michael Landau's sounds. In distortion mode it sounds like Gary Moore in his early days, but it's also good for heavy metal.

BRITISH CLASS A 15 W: Another Vox model, based on the first channel of an AC 15 from 1960. Unlike the AC 30 this amp had only one 12" speaker, instead of two, and produced a warmer sound. Tip: to make this simulation sound as authentically as possible, leave the BASS and MID controls in mid-travel position and vary the TREBLE control only.

RECTIFIED HI GAIN: This model is based on a 1994 Mesa Boogie Dual Rectifier Trem-O-Verb featuring a modern, high-gain sound that also comes over well in a band context. The tone control is post-gain, which allows you to tailor distorted sounds to great effect. This amp is perfect for heavy metal, but also for Steve Lukather sounds. The best-known user of this amp is Dream Theater's guitarist John Petrucci.

RECTIFIED HEAD: This simulation is modeled on a Mesa Boogie Dual Rectifier top. Unlike the Trem-O-Verb, this amp produces a more modern high-gain sound. The tone control is most effective at high gain settings.

MODERN HI GAIN: Here, too, the tone control is post-gain, allowing the extremely distorted sound to cut through the mix. The MODERN HI GAIN sound is ideal for playing Grunge, but is also used by guitarists such as Steve Vai and Joe Satriani. Steve Lukather, Nuno Bettencourt, Steve Vai, among others, have popularized the Soldano sound. If you're playing a Gibson Les Paul, MODERN HI GAIN sounds best when you turn down the volume control on the guitar a little.

SAVAGE BEAST: Engl is well-known for amps that can make themselves heard. The Savage 120 in particular has built up a large following among guitarists. For some time now Ritchie Blackmore has been an major endorser of this German company, and Randy Hanson, the best Hendrix since Jimi, also swears by this amp.

The unique feature of the Savage is its extreme power and is therefore highly popular with heavy metal guitarists. Silent Force/Sinner guitarist Alex Beyrodt has been an enthusiastic Engl user for years. An amp for making yourself heard!

FUZZ BOX: This sound is not actually based on any one amp, but on a particular fuzz box. Jimi Hendrix was one of the first guitarists to recognize the potential in this legendary broadband transistor distortion. The humming distortion sound of the FUZZ BOX has returned to popularity with Alternative Rock and Grunge.

CUSTOM HI GAIN: This sound goes back to a 1969 50-watt Marshall Plexi modified by Jose Arrendondo. Arrendondo was none other than Eddie Van Halen's guitar technician. The unique features of this amp are its fine mid-range sounds and its ability to produce the ultimate in gain without making the sound muddy. Warning: highly addictive!

ULTIMATE V-AMP: From clean to brutal hi-gain, the *Brute* covers the entire range. The ULTIMATE V-AMP is basically a souped-up rectifier amp.

ULTIMATE PLUS: Those who find the ULTIMATE V-AMP too tame will find enough gain here to overdose on.

DRIVE V-AMP: This simulation is based on a more modern high-gain lead amp producing a soft but precise sound with plenty of drive, making it ideal for lead guitar work. The DRIVE V-AMP is modeled on the Mesa Boogie Mark III.

CALIFORNIA DRIVE: Based on the Mesa Boogie Mark II c this is purely a simulation of its drive channel—definitely the right choice for Santana songs.

CRUNCH V-AMP: This amp is ideal for modern blues or jazz. Its sound is not too subtle, but not in-your-face either—it's crunchy, that's all.

CUSTOM DRIVE: This simulates the Dumble Overdrive Special—an amp that was at the top of many guitarists' wish-list but beyond their financial means. Dumble amps are hand-made and can be custom-built for the individual guitarist. What we've done here is to simulate the drive channel of one of these rare Dumble amps.

CLEAN V-AMP: Here we have managed to simulate the sound of a Roland JC-120 and combined it with our BRIT CLASSIC model. The result is the brilliance of a transistor amp which, however, features the cutting power of a Marshall Plexi. Turn the GAIN control clockwise and the Marshall comes in.

CALIFORNIA CLEAN: This model is based on the clean channel of the Mesa Boogie Mark II c. It sounds a little like a Fender, but has more of a punch in the mid-range.

TUBE PREAMP: Sound engineers were quick to recognize the appeal of tubes. They used tube amps to add warmth to all kinds of sounds. This amp model is not only for refining guitar sounds. Try putting a vocal track through the V-AMP 2 and give it the finishing touch with TUBE PREAMP.


CUSTOM CLEAN: This simulation is of the clean channel on our Dumble amp.

PREAMP BYPASS: In this setting, no amp simulation is selected. This makes it possible, for example, to play through an external guitar preamp and only to use the effects or the speaker simulation on the V-AMP 2. To activate the PREAMP BYPASS press TAP and TUNER.

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4.2 Speaker descriptions

The sound of any guitar combo depends largely on the type and combination of speakers used. In the past 50 years there has been widespread experimentation to find out what type of speaker is best suited to any one specific guitar sound and in what way the sound is modified when a certain speaker is combined with others.

 **When you select an amp simulation, an appropriate speaker simulation is activated automatically (see tab. 8.2 in the appendix). Otherwise the authenticity of the sound could be affected by an unsuitable cabinet—especially if you are using headphones. Naturally you can combine the amp simulations with other cabinets according to taste.**

The character of a loudspeaker is a combination of its power rating, impedance, sound pressure and size, as well as the material it is made of. 8", 10" and 12" speakers have established themselves as the best sizes for electric guitar amplification. The following list shows the speaker cabinets on the V-AMP 2:

Cabinets	
No.	Configuration
-	BYPASS (NO SPEAKER-SIMULATION)
1	1 x 8" VINTAGE TWEED
2	4 x 10" VINTAGE BASS
3	4 x 10" V-AMP CUSTOM
4	1 x 12" MID COMBO
5	1 x 12" BLACKFACE
6	1 x 12" BRIT '60
7	1 x 12" DELUXE '52
8	2 x 12" TWIN COMBO
9	2 x 12" US CLASS A
10	2 x 12" V-AMP CUSTOM
11	2 x 12" BRIT '67
12	4 x 12" VINTAGE 30
13	4 x 12" STANDARD '78
14	4 x 12" OFF AXIS
15	4 x 12" V-AMP CUSTOM

Tab. 4.1: Cabinets on the V-AMP 2

5. EFFECTS PROCESSOR

A special feature of your V-AMP 2 is its built-in multi-effects processor module offering 16 different presets of first-class effects such as chorus, flanger, delay, and auto-wah as well as various combinations of effects. The MIDI function also allows you to use an additional wah-wah effect which can be controlled best using a MIDI Foot Controller with an expression pedal, such as our BEHRINGER FCB1010. See tab. 8.1 for an overview of all MIDI data transmitted and received by the V-AMP 2.

 **The standard operating mode of the multi-effects processor is stereo, so you can use stereo effects for recording purposes via the LINE OUT or play in stereo using a second amplifier.**

The effects on the V-AMP 2 can be modified in three parameters: by turning the EFFECTS control, by turning the EFFECTS control and holding down the TAP button and by pressing the TAP button alone in time to the music. The following table shows the effect parameters for the V-AMP 2:

Effect No.	Effect	EFFECTS control	EFFECTS control with TAP key down	TAP key
1	ECHO	Mix	Feedback	Delay Time
2	DELAY	Mix	Feedback	Delay Time
3	PING PONG	Mix	Feedback	Delay Time
4	PHASER/DELAY	Delay Mix	Mod. Mix	Delay Time
5	FLANGER/DELAY 1	Delay Mix	Mod. Mix	Delay Time
6	FLANGER/DELAY 2	Delay Mix	Mod. Mix	Delay Time
7	CHORUS/DELAY 1	Delay Mix	Mod. Mix	Delay Time
8	CHORUS/DELAY 2	Delay Mix	Mod. Mix	Delay Time
9	CHORUS/COMPRESSOR	Sense	Mod. Mix	Modulation Speed
10	COMPRESSOR	Sense	Attack	-
11	AUTO WAH	Depth	Speed	-
12	PHASER	Mix	Feedback	Modulation Speed
13	CHORUS	Mix	Depth	Modulation Speed
14	FLANGER	Mix	Feedback	Modulation Speed
15	TREMOLO	Mix	-	Modulation Speed
16	ROTARY	Mix	Depth	Modulation Speed

Tab. 5.1: V-AMP 2 effects



To match speed-based effects to the tempo of the music, please press the TAP button twice in time to the music.

5.1 Effect descriptions

The following section contains short descriptions of the effects that can be produced using the multi-effects processor in your V-AMP 2.



Reverb and delay algorithms

REVERB: Reverb is still the most important effect for mixing or live performance. That's why we at BEHRINGER make a point of giving you as many as nine different reverb programs so that you can use the most suitable reverb program for any situation. The reverb effect can be added separately to all the other effects (see chapter 5.2).

ECHO: Echo is like the stereo delay effect in that it is a delayed repetition of the input signal, apart from the fact that the high-frequency content of the repeated signals steadily decreases. This simulates a tape delay used in the pre-digital era, producing a "vintage sound". In addition, the reflections are routed in turns to the left and right channels, creating a quasi-stereo effect.

DELAY: This algorithm delays the input signal, with different tempo settings producing interesting delay effects. U2's The Edge has impressively demonstrated the potential of this effect.

PING PONG: A delay effect that changes position on the stereo channels.



Modulation effects

PHASER: The principle behind the phaser is that a second, phase-shifted signal is added to the audio signal. This makes the sound richer and, above all, livelier. This effect is popular among guitarists and keyboard players alike, but was also used extensively in the 70s with other instruments, such as electric pianos. Depending on how you set it, the V-AMP 2 phaser can be used to produce slightly modulating or strongly alienating effects.

FLANGER: This effect is self-explanatory. Originally the flanger effect was produced by running two synchronized tape recorders at the same time. The same signals (e.g. a guitar solo) were recorded on both machines. Putting a finger on the left reel of one of the machines caused it and the speed of the playback to slow. The resulting delay produced phase shifts of the signals.

CHORUS: This effect adds a slightly modulated off-key element to the original signal, thus creating a pleasant floating effect through variations in pitch.



Combinations of effect algorithms (multi-effects programs)

PHASER & DELAY: Phaser and delay combined.

FLANGER & DELAY: Here the input signal is delayed and processed with a pronounced wave-like effect. It is particularly effective for highlighting single notes, but can also be used to make solos more interesting.

CHORUS & DELAY: This algorithm combines signal delay with the popular chorus effect.

CHORUS & COMP: Incredible sustain effects can be produced with the compressor. This is especially useful for sustaining individual guitar notes. Combined with chorus, it can make the audio signal extremely dense.



Special effects

COMPRESSOR: A compressor limits the dynamic range of the audio material, thus producing audible and creative sound effects. Pronounced use of the compressor (using the EFFECTS control) allows you to compress the overall dynamic range of the material.

AUTO-WAH: The legendary wah-wah effect owes its fame mainly to Jimi Hendrix. Describing it is certainly more difficult than simply listening to Hendrix using it on Voodoo Chile. In American funk music of the 70s you can hear auto-wah effects used in a variety of applications. The auto-wah alters its filter frequency automatically depending on the signal's magnitude, rather than being controlled by the position of a pedal.

TREMOLO: Simulates the classic Fender Tremolo. It has returned to popularity with trip-hop.

ROTARY: This is the quintessential simulation of the classic organ effect normally produced by speakers rotating at slow or fast speed in an extremely heavy speaker cabinet. This effect uses the physical principle of the Doppler effect to modulate the sound.

NOISE GATE: Noise gates are used to remove or reduce noise or other interference. Guitar signals in particular are very sensitive to interference. Not only do guitarists often use high-gain settings but guitar pick-ups can amplify unwanted interference. This can be painfully apparent during breaks in the music. And how does a noise gate work? It simply mutes the signal during breaks, eliminating any interference at the same time.

5.2 The separate reverb effect

The reverb effect from your V-AMP 2 is independent of the multi-effects processor and can be added to the mix signal at any time. To edit the REVERB function, press button D in EDIT mode (pressing the two arrow keys simultaneously) and use the two arrow keys to select one of the nine different reverb types available:

Reverb No.	Reverb Type	Quality
1	Tiny Room	Classic room simulation featuring various room sizes from bathroom to cathedral.
2	Small Room	
3	Medium Room	
4	Large Room	
5	Ultra Room	Special effect transforming guitar signals into heavenly pad sounds.
6	Small Spring	Simulations of typical spring reverbs.
7	Medium Spring	
8	Short Ambience	Simulates the early reflections of a reverbless room.
9	Long Ambience	

Tab. 5.2: The different types of reverb effects on the V-AMP 2

6. TUNER

Press the TUNER button to activate the built-in tuner.

6.1 Tuning your guitar

The chromatic tuner automatically recognizes the frequencies of all the standard guitar notes. For the A-string this means a frequency of 220 Hz. When you plug your guitar into the V-AMP 2 and play an open string, the tuner will recognize and display the note. Since the tuner uses an auto-chromatic scale, it can also recognize semi-tones, which are shown with a “b” in the display.

It may happen, however, that a note is displayed as “A” but is actually slightly out of tune. This is shown by at least one of the four LEDs at the foot of the display lighting up. In certain cases even two of the LEDs may light up, which indicates that the pitch of the note played lies between the pitches represented by the two LEDs. When the circular tuner LED in the middle lights up, this means the note played is in tune.

6.2 Setting reference pitch “A”

To give you maximum freedom for tuning your guitar, you can change the preset reference pitch “A”. For the sake of clarity, let’s look at this in more detail.

The so-called concert pitch “A” has been raised steadily over time. For example, the tuning forks used by Bach, Händel or Mozart were 415, 420 or 421 Hz (oscillations per second). Today’s orchestras tune to “A” at 444 Hz, and the Berlin Philharmonic Orchestra lead the field with their own concert pitch “A” at 447 Hz.

The reference “A” on your V-AMP 2 has been factory-programmed at 440 Hz. If you are going to play with a big orchestra tuning their instruments to a reference pitch of 444 Hz, you will need a function that allows you to change your reference pitch. To activate this function, switch on the tuner by pressing the TUNER button and switch to EDIT mode by pressing the two arrow keys simultaneously. The display will show “40”, which means 440 Hz. Use the arrow keys to raise or lower the reference pitch by up to 15 Hz. The display always shows the last two digits as the first digit is always 4. For example, if you start with a reference pitch of 440 Hz and press the right-hand arrow three times, the display will read 43, i.e. 443 Hz. To quit EDIT mode, press either the TUNER or the TAP button. Any changes will be stored automatically. The tones for the other strings on your guitar will automatically be adjusted to the new reference pitch.

7. INSTALLATION

7.1 Audio connections

The input of your BEHRINGER V-AMP 2 is a mono 1/4" jack. The Line Out, Aux In and headphones outputs are stereo 1/4" jacks. The Line Out outputs work with both balanced and unbalanced connections.

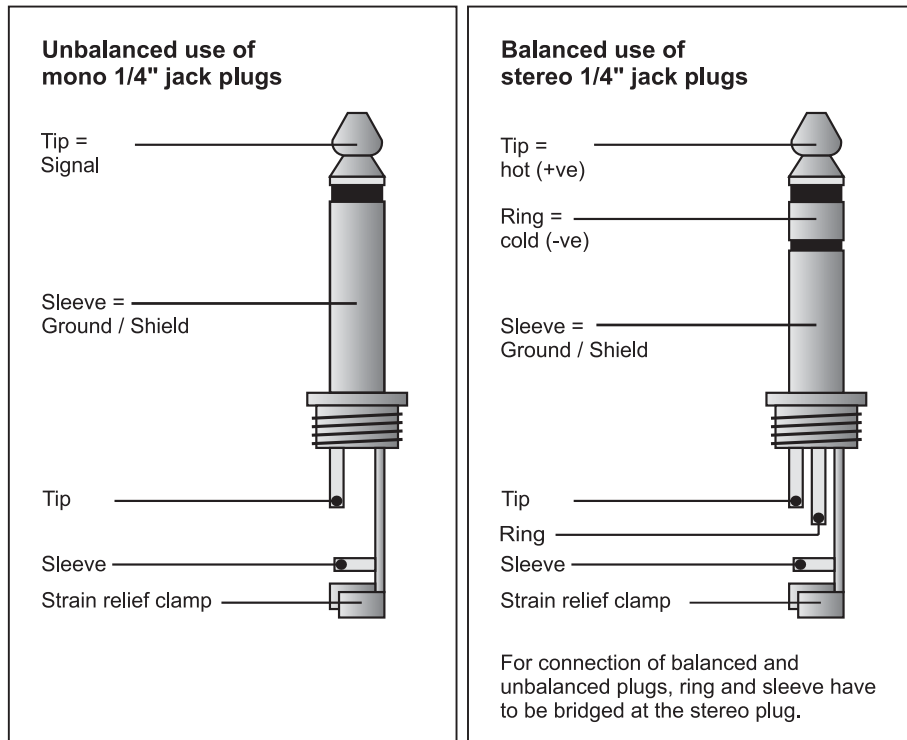


Fig. 7.1: Comparison of different plug types

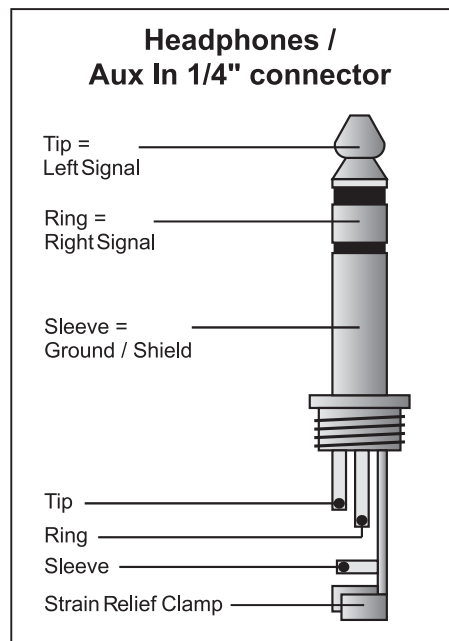


Fig. 7.2: Wiring of a stereo headphones 1/4" plug

7.2 MIDI connections

The MIDI standard (**M**usical **I**nstruments **D**igital **I**nterface) was developed in the early 80s to enable different makes of electronic instruments to communicate with each other. Over the years the range of MIDI applications has constantly expanded, and today it is standard practice to network entire recording studios using the MIDI standard.

The heart of such a network is a computer with sequencer software that controls not only all the keyboards but also effects and other peripheral devices. In such a studio set-up you can control the V-AMP 2 in real time from a computer. For live performances in particular you can also use a MIDI Foot Controller to control both effect parameters and preset changes on your V-AMP 2.

The MIDI connectors on the side panel of the V-AMP 2 are international-standard 5-pin DIN jacks. To connect your V-AMP 2 to other MIDI equipment you will need dedicated MIDI cables. They are commercially available in various standard lengths.

MIDI IN: receives MIDI controller data. The receiving channel can be adjusted in EDIT mode by pressing the A button and then using the arrow keys.

MIDI OUT: MIDI OUT is for sending data to a computer or any other devices. You can transmit both preset data and parameter changes.

7.2.1 Sending/receiving MIDI-Sysex data

The V-AMP 2 can receive system-exclusive data from other MIDI devices provided that the MIDI function (button A) has been activated in EDIT mode. However, this means that all presets on the V-AMP 2 will be overwritten automatically. You can also transmit MIDI data from your V-AMP 2 to other devices (total dump) by switching to EDIT mode and pressing the MIDI button until the display reads "d". The total dump function can be useful for transferring all the stored data from your V-AMP 2 to a MIDI sequencer and storing it there.

To send individual presets to other devices: switch to EDIT mode by pressing both arrow keys on the transmitting unit simultaneously, activate the MIDI function and briefly tap the MIDI button. The preset data are first filed in the temporary buffer and can be stored in the preset position of your choice using the store function.

8. APPENDIX

8.1 MIDI implementation

MIDI Implementation Chart			
Function	Transmitted	Received	Remarks
Midi Channel	1-16	1-16	-
Mode	N	N	-
Note Number	N	N	-
Velocity	N	N	-
After Touch	N	N	-
Pitch Bender	N	N	-
Control Change	-	-	-
1	N (request only)	Y	Wah Pedal
7	N (request only)	Y	Volume Pedal
12	Y	Y	Amp Gain (0-127)
13	Y	Y	Amp Treble (0-127)
14	Y	Y	Amp Mid (0-127)
15	Y	Y	Amp Bass (0-127)
16	Y	Y	Amp Vol (0-127)
17	Y	Y	Presence (0-127)
18	Y	Y	Reverb Mix (0-127) *2
19	Y (skipped on request)	Y	Amp Type (0-32) with default cabinet *3
20	Y (skipped on request)	Y	Fx Type (0-15) with defaults *1
21	Y	Y	Fx off/on (0/127)
22	Y	Y	Reverb Send off/on (0/127)
23	Y	Y	Cabinet Type (0-15) *5
24	Y	Y	Reverb Type (0-8) *4
25	Y	Y	Noise Gate Level (0-15)
26	Y	Y	Drive off/on (0/127)
27	Y	Y	Wah off/position (0/1-127)
44	N (request only)	Y	pre Effect Type (0-2) *6
45	Y	Y	pre Effect Par 1 *6
46	Y	Y	pre Effect Par 2 *6
47	N (request only)	Y	pre Effect Par 3 *6
48	N (request only)	Y	pre Effect Par 4 *6
49	N (request only)	Y	Delay Type (0-2) *7
50	Y	Y	Delay Time hi (0-117) *8
51	Y	Y	Delay Time lo (0-127) *8
52	N (request only)	Y	Delay Spread (0-127)
53	Y	Y	Delay Feedback (0-127)
54	Y	Y	Delay Mix (0-127) *9
55	N (request only)	Y	post Fx Mode (0-6) *10
56	Y	Y	post Fx Par 1 *10
57	Y	Y	post Fx Par 2 *10
58	Y	Y	post Fx Par 3 *10
59	Y	Y	post Fx Mix (0-127) *11
60	N (request only)	Y	Assign Effects Control (0-15) *1
61	N (request only)	Y	Amp Type (0-32) w/o cabinet change *3
64	N	Y	Tap (Value > 63)
80	N	Y	Request Controls (Value = 80)
81	N (request only)	Y	Set Pos (0-15), Set Character (32-127)
82	Y	Y	Tuner Bypass Volume (0-127)
83	Y	Y	Tuner Center Frequency (25-55)
84	Y	Y	Configuration (0-4=S1,S2,L1,L2,L3)
85	Y	Y	Live EQ Treble (0-127)
86	Y	Y	Live EQ Mid (0-127)
87	Y	Y	Live EQ Bass (0-127)
Program Change	Y (0-124)	Y (0-124,127)	127=Tuner
System Exclusive	Y	Y	see SysEx Documentation
System Common	N	N	-
System Real Time	N	N	-
Running Status	Y (2s Timeout)	Y	-

Tab. 8.1: MIDI implementation

8.2 Default cabinets/amp models

1st level name	#	default cabinet simulation	2nd level name	#	default cabinet simulation
AMERICAN BLUES	2	4 x 10" VINTAGE BASS	AND DELUXE	2	4 x 10" VINTAGE BASS
MODERN CLASS A	9	2 x 12" US CLASS A	CUSTOM CLASS A	9	2 x 12" US CLASS A
TWEED COMBO	1	1 x 8" VINTAGE TWEED	SMALL COMBO	1	1 x 8" VINTAGE TWEED
CLASSIC CLEAN	8	2 x 12" TWIN COMBO	BLACK TWIN	8	2 x 12" TWIN COMBO
BRIT. BLUES	12	4 x 12" VINTAGE 30	AND CUSTOM	12	4 x 12" VINTAGE 30
BRIT. CLASS A	11	2 x 12" BRIT. '67	NON TOP BOOST	11	2 x 12" BRIT. '67
BRIT. CLASSIC	12	4 x 12" VINTAGE 30	CLASSIC 50 W	13	4 x 12" STANDARD '78
BRIT. HI GAIN	12	4 x 12" VINTAGE 30	BRIT. CLASS A 15 W	6	1 x 12" BRIT. '60
RECTIFIED HI GAIN	15	4 x 12" V-AMP CUSTOM	RECTIFIED HEAD	15	4 x 12" V-AMP CUSTOM
MODERN HI GAIN	15	4 x 12" V-AMP CUSTOM	SAVAGE BEAST	13	4 x 12" STANDARD '78
FUZZ BOX	14	4 x 12" OFF AXIS	CUSTOM HI GAIN	15	4 x 12" V-AMP CUSTOM
ULTIMATE V-AMP	15	4 x 12" V-AMP CUSTOM	ULTIMATE PLUS	15	4 x 12" V-AMP CUSTOM
DRIVE V-AMP	15	4 x 12" V-AMP CUSTOM	CALIF. DRIVE	4	1 x 12" MID COMBO
CRUNCH V-AMP	15	4 x 12" V-AMP CUSTOM	CUSTOM DRIVE	5	1 x 12" BLACKFACE
CLEAN V-AMP	15	4 x 12" V-AMP CUSTOM	CALIF. CLEAN	4	1 x 12" MID COMBO
TUBE PREAMP	-	no cab simulation for use on vocals	CUSTOM CLEAN	5	1 x 12" BLACKFACE

Tab. 8.2: Default cabinets/amp models

9. SPECIFICATIONS

AUDIO INPUTS

Guitar input	1/4" mono phone jack, unbalanced
Input impedance	approx. 1 M Ω
Aux inputs	1/4" stereo connector, balanced
Input impedance	approx. 50 k Ω

AUDIO OUTPUTS

Line outputs	1/4" stereo connector, balanced
Output impedance	approx. 2 k Ω
S/N ratio	90 dB @ preamp bypass
Headphones	1/4" stereo phone jack

MIDI INTERFACE

Type	5-pos. DIN jacks IN / OUT
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DIGITAL PROCESSING

Converters	24-Bit Delta-Sigma, 64/128 oversampling
Sampling rate	31.250 kHz
DSP	100 Mips
Delay time	max. 1,933 ms

DISPLAY

Type	2-digit numeric LED
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POWER SUPPLY

Power consumption	13 W
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DIMENSIONS/WEIGHT

Dimensions (H x W x D)	approx. 2 1/2" (63 mm) x 9 1/4" (236 mm) x 7 1/8" (180 mm)
Weight	approx. 1.2 kg

10. WARRANTY

§ 1 WARRANTY CARD/ONLINE REGISTRATION

To be protected by the extended warranty, the buyer must complete and return the enclosed warranty card within 14 days of the date of purchase to BEHRINGER Spezielle Studiotechnik GmbH, in accordance with the conditions stipulated in § 3. Failure to return the card in due time (date as per postmark) will void any extended warranty claims. Based on the conditions herein, the buyer may also choose to use the online registration option via the Internet (www.behringer.com or www.behringer.de).

§ 2 WARRANTY

1. BEHRINGER (BEHRINGER Spezielle Studiotechnik GmbH including all BEHRINGER subsidiaries listed on the enclosed page, except BEHRINGER Japan) warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (1) year* from the original date of purchase, in accordance with the warranty regulations described below. If the product shows any defects within the specified warranty period that are not excluded from this warranty as described under § 3 and 4, BEHRINGER shall, at its discretion, either replace or repair the product using suitable new or reconditioned parts. In the case that other parts are used which constitute an improvement, BEHRINGER may, at its discretion, charge the customer for the additional cost of these parts.

2. If the warranty claim proves to be justified, the product will be returned to the user freight prepaid.

3. Warranty claims other than those indicated above are expressly excluded.

§ 3 RETURN AUTHORIZATION NUMBER

1. To obtain warranty service, the buyer (or his authorized dealer) must call BEHRINGER (see enclosed list) during normal business hours **BEFORE** returning the product. All inquiries must be accompanied by a description of the problem. BEHRINGER will then issue a return authorization number.

2. Subsequently, the product must be returned in its original shipping carton, together with the return authorization number to the address indicated by BEHRINGER.

3. Shipments without freight prepaid will not be accepted.

§ 4 WARRANTY REGULATIONS

1. Warranty services will be furnished only if the product is accompanied by a copy of the original retail dealer's invoice. Any product deemed eligible for repair or replacement by BEHRINGER under the terms of this warranty will be repaired or replaced within 30 days of receipt of the product at BEHRINGER.

2. If the product needs to be modified or adapted in order to comply with applicable technical or safety standards on a national or local level, in any country which is not the country for which the product was originally developed and manufactured, this modification/adaptation shall not be considered a defect in materials or workmanship. The warranty does not cover any such modification/adaptation, irrespective of whether it was carried out properly or not. Under the terms of this warranty, BEHRINGER shall not be held responsible for any cost resulting from such a modification/adaptation.

3. Free inspections and maintenance/repair work are expressly excluded from this warranty, in particular, if caused by improper handling of the product by the user. This also applies to defects caused by normal wear and tear, in particular, of faders, potentiometers, keys/buttons and similar parts.

4. Damages/defects caused by the following conditions are not covered by this warranty:

- ▲ improper handling, neglect or failure to operate the unit in compliance with the instructions given in BEHRINGER user or service manuals.
- ▲ connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used.
- ▲ damages/defects caused by force majeure or any other condition that is beyond the control of BEHRINGER.

5. Any repair or opening of the unit carried out by unauthorized personnel (user included) will void the warranty.

6. If an inspection of the product by BEHRINGER shows that the defect in question is not covered by the warranty, the inspection costs are payable by the customer.

7. Products which do not meet the terms of this warranty will be repaired exclusively at the buyer's expense. BEHRINGER will inform the buyer of any such circumstance. If the buyer fails to submit a written repair order within 6 weeks after notification, BEHRINGER will return the unit C.O.D. with a separate invoice for freight and packing. Such costs will also be invoiced separately when the buyer has sent in a written repair order.

§ 5 WARRANTY TRANSFERABILITY

This warranty is extended exclusively to the original buyer (customer of retail dealer) and is not transferable to anyone who may subsequently purchase this product. No other person (retail dealer, etc.) shall be entitled to give any warranty promise on behalf of BEHRINGER.

§ 6 CLAIM FOR DAMAGES

Failure of BEHRINGER to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of BEHRINGER exceed the invoiced value of the product.

§ 7 OTHER WARRANTY RIGHTS AND NATIONAL LAW

1. This warranty does not exclude or limit the buyer's statutory rights provided by national law, in particular, any such rights against the seller that arise from a legally effective purchase contract.

2. The warranty regulations mentioned herein are applicable unless they constitute an infringement of national warranty law.

* Customers in the European Union please contact BEHRINGER Germany Support for further details.

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